REMARKS

Claims 1-36 are pending in this application. The original patent (US 5,867,214) issued with claims 1-18. Claims 19-34 were added with the preliminary amendment filed February 2, 2001. In a June3 Amendment A, Claims 16, 19, and 24-28 were amended relative to that preliminary amendment and Claim 35 was added. In this Amendment B, Claims 16, 19, 24-28 and 35 are herein amended relative to that Amendment A and Claim 36 is new. No new matter has been introduced thereby. The Examiner objected to claim 18, and rejected claims 16, 17, 19, 24-27, 31 and 35 over Parulski et al. (US 5,633,678), and claim 32 over Parulski combination with Aciu et al. (US 5,625,412). The Examiner allowed claims 1-15, 20-23, 28-30, 33, and 34.

Applicants wish to thank the Examiner for taking the time to conduct the February 11, 2003 telephone interview with Applicants' attorney. During that interview, the Examiner agreed to enter the amendment presented below, which Applicant believes addresses the Examiner's concern that the digital signal processor of the cited reference could inherently contain a memory.

Applicants traverse the Examiner's rejections with respect to the pending claims as amended.

Claim 16 recites (*italics emphasis added*):

16. (thrice amended) An apparatus for increasing [a digital camera] image capture rate, comprising:

> an imaging device for generating raw image data responsive to an image capture request;
>
> a memory buffer for initially storing the raw image data;
>
> first routines for conveying the initially stored raw image data away from the [frame] memory buffer to a second memory [*location*] to provide space for storing additional, subsequently captured images, wherein the raw image data is stored in uncompressed form in the second memory [*location*] *and wherein the second memory has the capacity to store complete raw image data for multiple raw images*;

second routines *for conveying said raw image data from the second memory to a processor* for processing said raw image data and for storing said processed image data; and

a central processing unit coupled to the imaging device and to the memory buffer, for executing according to a predetermined set of priorities the first and second routines;

wherein the first routines are assigned priority over the second routines to thereby facilitate the rapid conveyance of raw image data away from the [frame] memory buffer.

Claim 19 recites (*italics emphasis added*):

19.   (twice amended) An apparatus for increasing image capture rate, comprising:

an imaging device for generating raw image data responsive to an image capture request, and further for storing the raw image data in a memory buffer; and

a central processing unit coupled to the imaging device and the memory buffer, for transferring the raw image data to a second memory *that is external to any processing chip, transferring the raw image data from the second memory to a processor* for processing the raw image data and storing the processed image data according to a predetermined set of priorities, wherein transferring the raw image data to the second memory has a higher priority than transferring the raw image data to a processor.

In digital cameras, two factors limit the rapid taking of multiple photos: storage space and processing time. When a picture is taken, raw image data is initially stored in the memory buffer (also known as the "frame buffer" or "image buffer"). The frame buffer has limited storage capacity. When it gets full, no more pictures can be taken. Photos can be compressed to take less space, but compression takes time. Compressing each photo as it is taken delays taking of the next photo. Waiting until the frame buffer is full and then compressing the photos causes even greater delay.

The claimed invention quickly empties the frame buffer by moving the raw image data to a second memory prior to processing. *This second memory is either (i) large enough to store*

multiple complete raw images or (ii) external to any processing chip. The conveyance of data to such a second memory is designed to maintain the frame buffer in a condition to receive new image data from the imaging device. The time consuming process of compression is postponed in favor of a higher priority task—moving raw image data in uncompressed form out of the way in order to provide space for storing additional, subsequently captured images. Raw image data *from the second memory* is then compressed.

Parulski does not show conveying the initially stored raw image data away from the memory buffer to a second memory in uncompressed form to provide space for storing subsequently captured images, where the second memory is either (i) large enough to store multiple complete raw images or (ii) external to any processing chip. Parulski also does not show conveying raw image data from such a second memory to be compressed. Rather, in Parulski, "once a certain amount of digital image data has accumulated in the image buffer **18**, the stored data is applied to a programmed digital signal processor **22**, which…compresses each still image stored in the image buffer **18**." (Parulski col. 4 lines 22-30). Even if there were a memory inherent in the digital signal processor **22**, such memory would be neither (i) large enough to store multiple complete raw images nor (ii) external to any processing chip. Only after compression does Perulski send the compressed data to a memory that meets either of these criteria. (Parulski col. 4, lines 36-37)

Claims 24, 27 and 35 have been amended to contain similar attributes for the second memory.

New Claim 36 addresses the case where there is no second processor performing the compression beyond the central processing unit.

Thus, all independent claims are patentable over Parulski.

Dependent Claims 17, 25, 26, 31 and 32 should be allowed by virtue of their dependence on allowable claims.

Claims 24-26 have also been amended to parallel the other pending claims in describing the particular memory that is not the initial frame buffer as a "second memory" instead of as a "first memory."

If the Examiner believes that any issues remain outstanding prior to allowance of the remainder of the pending claims, she is respectfully invited to contact the undersigned attorney to resolve such issues in an expedient manner.

Favorable action is solicited.

Respectfully submitted,
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